Before It Is Too Late!

The AAAV: As Transformational As It Gets

By DANIEL GOURE

Dr. Daniel Goure is vice president of the Lexington Institute in Arlington, Virginia.

Secretary of Defense Donald H. Rumsfeld frequently reminds the American people that they are living in an era of uncertainty. For that reason, he points out, the United States must have military capabilities of sufficient robustness and variety to respond to a broad array of threats and potential conflict scenarios. In certain areas—e.g., national missile defense (NMD)—the Department of Defense is pursuing capabilities even though the threat to the U.S. homeland has yet to emerge.

Why? Because when the requirement arises it is probably too late to begin fielding the capability needed. If and when a rogue state were to launch a ballistic missile at the United States, for example, and an NMD system were not already in place it would be far too late to start the long process of developing and deploying such a system.

The same rationale applies to Marine Corps capabilities for expeditionary warfare. Critics of the Corps often point out that it has been more than 50 years since it conducted an opposed amphibious landing. They use that "fact" (not entirely true) not only as an argument against investing in expeditionary capabilities in general but also as a reason for *not* funding such weapons platforms as amphibious assault ships, the V-22 Osprey tiltrotor aircraft, and the Advanced Amphibious Assault Vehicle (AAAV).

But, if there is one thing that the experience of the last year tells everyone, it is that no one can predict the future with any certainty, particularly when it comes to when, where, and how the United States might have to employ military power. That is why the 2001 Quadrennial Defense Review (QDR) shifted the focus of U.S. defense planning from a threat-driven approach to a capabilities-driven approach. This was part of the Department of Defense's plan for transformation. Another aspect of that plan is to encourage the services to acquire new types of capabilities. The kinds of capabilities that are being emphasized in current defense planning are advanced C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance), precision, speed, mobility, survivability, jointness, and reduced logistics. Systems and force elements possessing such capabilities

GENERAL DYNAMICS

Powerful high-speed waterjet engines speed this General Dynamics AAAV (Advanced Amphibious Assault Vehicle) toward shore at nearly 30 mph. Much-improved speed, range, armament, and firepower are reasons the Marine Corps needs these vehicles for 21st-century expeditionary operations.

will be useful in virtually every future scenario imaginable.

Not for the first time, the Marine Corps was well ahead of the Department of Defense (DOD) not only in formulating a transformational approach to the conduct of military operations but also in identifying the combat capabilities necessary to support that new approach. The Marine Corps has developed a concept that it terms expeditionary maneuver warfare. The idea is to shatter the adversary's cohesion and ability to fight by a variety of actions that allow Marine Corps and joint forces to seize the initiative, control the course and outcome of the conflict, and progressively deny the adversary any means for reasserting his control over his forces—and, hence, the battlefield.

Today, and for the foreseeable future, expeditionary maneuver warfare as practiced by the Navy-Marine Corps team would most likely come from the sea. But that is not a requirement. When coming from the sea it would involve a seamless flow of forces from ships over the horizon to sites over and, more likely, well inland from the beach—and then, without pause, even deeper into hostile territory. Speed and maneuverability are critical to the viability of this operational concept.

Just as it is impossible to predict the when, where, and how of the future wars the United States is likely to be fighting, it is impossible to know when the Marine Corps may be called on to exercise its expeditionary capabilities. Without question, warfare in the future is going to be more intense, faster, and more precise. It will require forces that are strategically mobile and tactically agile, that can survive and operate on very lethal battlefields, that are networked as part of the joint force, and that can acquire and exploit information effectively. However it is employed in the future, therefore, the Marine Corps needs to invest in capabilities with the characteristics defined in the QDR.

The AAAV and Transformation

The AAAV program is intended to provide the Marine Corps with a highly effective armored amphibious vehicle that will replace the aging Amphibious Assault Vehicle (AAV7). The AAAV is as transformational a system as exists, at least in the near term. In the area of strategic and tactical mobility alone, it represents a remarkable improvement over the AAV7. Employing powerful high-speed waterjet engines, the AAAV has an at-sea speed of 23 to 29 mph, approximately four times that of the AAV7. It also can reach the shore from ships as far out to sea as 65 miles—a 20 mile improvement over the AAV7. Equally important, the AAAV allows for the automatic transfer of engine power from the waterjets to the vehicle's tracks. This facilitates a smooth and rapid transition from water to cross-country movement, significantly reducing the time spent in one of the most difficult and dangerous tasks for amphibious vehicles. The AAAV speed on land, approximately 30 mph—fast enough to keep up with main battle tanks—is almost twice that of the AAV7.

Once ashore, the AAAV meets all of the DOD criteria for a transformational system. In addition to its high land speed, the AAAV has sufficient ballistic protection to defeat rounds up to 14.5mm (and/or fragments from 155mm artillery shells). It also has improved mine blast protection and an NBC (nuclear/chemical/biological) defense system. This combination of features alone translates directly into enhanced survivability.

The personnel-carrier variant of the AAAV is equipped with a highly lethal 30mm Bushmaster main gun in a two-man turret with digital fire control. This gun system will allow the AAAV to engage and defeat lightly armored vehicles with precision fire. Situational awareness will be provided by a set of advanced sensors including a forward-looking infrared (FLIR) system, a laser range finder, and a compact modular sight. The AAAV's overall speed and maneuverability will help to translate into reality the Marine Corps concept of expeditionary maneuver warfare by making possible the continuous forward movement of combat-equipped Marines from ships located well over the horizon from hostile shores to objectives many miles inland.

The AAAV is also an information platform. The personnel and command-and-control variants of the AAAV both will be equipped with advanced radios, a satellite link, and battle computers. The command-and-control variant will have seven work stations and be able not only to coordinate the maneuver of companies and platoons, but to direct fire support activities as well. The personnel-carrier variant, according to one source, will have more command-and-control capability than the Marine Corps' current battalion-level command vehicle. The enhanced information capabilities of both variants will support more flexible independent operations and provide tighter linkage with other forces engaged in joint operations.

It is difficult to imagine a more transformational system than the AAAV. It

AAAV SPECIFICATIONS

Armor Protection	14.5mm AP 155 mm Artillery Frag.
Fire Suppression	Automatic (Non-Ozone Depleting)
Environmental Control System	Climate Control & NBC Protection
Suspension	Retractable Hydropneumatic 17 inches of Jounce, 5 inches of Rebound
Engine	MTU MT883 Ka523 Diesel Water Mode, 2700 hp Land Mode, 850 hp
Transmission	Allison X4560
Water Propulsion	Two 23" Dia. Water Jets
Primary Weapon	30mm Bushmaster Mk44
Coax Weapon	7.62mm M240 Machine Gun
Operating Range–Land	400 miles
Operating Range–Sea	65 nautical miles
Speed–Land	45 mph
Speed–High Water Speed Mode	23-29 mph (20-25 knots)
Speed–Transition Mode	10 mph (9 knots)

demonstrates maneuverability, survivability, precision engagement, jointness, and the exploitation of information. Together with the V-22, it will fundamentally transform Marine Corps operations, permitting the conduct of expeditionary maneuver warfare.

Is the Program on Track? Or on the Chopping Block?

In light of what the AAAV offers it would be reasonable to think that the program would be one of the Pentagon's favorites. But this does not appear to be the case. There are persistent rumors that the AAAV is a potential candidate for cutbacks or even outright cancellation.

The original program envisioned procuring a little over 1,000 vehicles, starting in 2005 and continuing through 2017. The start date has now been pushed back to 2006 to allow more time for testing. Reports from the field indicate that the test program is generally going very well.

As the date for initial procurement slips, the AAAV inevitably will be in competition with the Army's Future Combat System (FCS)—a "family" of systems that includes both manned and unmanned platforms. The Marine Corps is interested in exploiting a number of technologies being developed for the FCS. This in itself may pose a challenge to the AAAV, at least to the extent that the Marine Corps might want to downplay the unique amphibious characteristics of the AAAV and focus instead on its much greater capabilities (vis-à-vis the AAV7) for moving combat forces not only through the littorals and onto the beach but also to target objectives well inland.

More alarming have been reports that the AAAV may be in danger of breaching the fiscal thresholds agreed to by the legislative and executive branches. Under law, DOD must notify Congress if a program experiences a 15 percent cost overrun. If the overrun reaches 25 percent, DOD must certify to Congress that the program is essential to national security. DOD already has cancelled one program (the Navy's Area Missile Defense System) for exceeding the 25 percent threshold. Undersecretary of Defense for Acquisition, Technology, and Logistics E.C. Aldridge suggested several months ago that the AAAV is one of about a dozen other programs also in danger. The Marine Corps has hotly contested his view, asserting that the program has experienced only a relatively modest 8 percent cost growth.

More important is how the Marine Corps itself feels about the AAAV program. It appears that at least some of the Marine Corps' senior leadership would like the program to "speak for itself." This is the same strategy that the Corps is using on the V-22, another vital transformational program. Such a strategy might be appropriate if DOD were not in desperate need of money to fund what it considers to be transformational systems. If the AAAV is not considered sufficiently transformational, it may be in some danger. A more aggressive campaign by the Marine Corps not only to defend the AAAV program but also to explain the inextricable linkages between the concept of expeditionary maneuver warfare and the AAAV/V-22 team would therefore seem to be in order.

One of the most important "lessons learned" from Afghanistan is the utility of expeditionary maneuver warfare as conducted by all of the nation's armed services. The rapid insertion of a Marine Expeditionary Unit into southern Afghanistan, at Camp Rhino, changed the strategic situation on the ground, forcing the Taliban to face both north and south. Speed and maneuver were essential to the ability of U.S. and coalition forces to defeat the Taliban. The Marine Corps also demonstrated the advantage of possessing light armored vehicles that could operate in rough terrain. These same factors are likely to be of critical importance in future U.S. combat operations.

As the United States prepares for a possibly prolonged war with Iraq as a logical follow-on in the continuing war on international terrorism, it seems increasingly likely that the U.S. military will be called on to project power into new and distant lands. The ability to conduct rapid and precise expeditionary maneuver warfare from carriers, amphibious ships, and—in the future, quite possibly—"sea bases" offshore will give the U.S. armed forces unique strategic and operational advantages over potential adversaries.

But in order to execute such operations effectively the Marine Corps will need systems such as the AAAV. As suggested earlier in the comparison with an NMD system, it is absolutely essential to have such systems in place before the need arises. Otherwise, it will be far too late. ■

GENERAL DYNAMICS

On land, the AAAV (Advanced Amphibious Assault Vehicle) can move well inland rapidly to engage and defeat lightly armored vehicles with precision fire, while protecting Marines inside from mine blasts, small-arms fire, and both chemical and biological weapons.